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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,922	09/23/2004	Magalie Haguët	2002P04668WOUS	7999

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER

CHANG, SUNRAY

ART UNIT	PAPER NUMBER
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2121

MAIL DATE	DELIVERY MODE
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10/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/508,922

Applicant(s)

HAGUET ET AL.

Examiner

Sunray Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. This office action is in responsive to the paper filed on February 20<sup>th</sup>, 2007.

Claims 11 – 21 are presented for examination.

Claims 11 – 21 are rejected.

Claim 21 is newly cited independent claim.

**Claim Objections**

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 9 – 19 have been renumbered to claims 11 – 21 hereinafter.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 11 – 21 are rejected** under 35 U.S.C. 102(b) as being anticipated by Tadayoshi Saito et al. (U.S. Patent No. 4,903,192, and referred to as **Saito** hereinafter).

**Regarding independent claims 11 and 21, (original claims 9 and 19) Saito teaches,**

A method for controlling a component of a technical plant by a PI controller that has control parameters including a control ratio and an integral-action time, comprising: defining the integral-action time; (see col 7, lines 6-7) defining an initial value of the control ratio; (see col 6, lines 34-37. Examiner notes the overshoot and damping ratio to be the control ratio claimed by applicant) defining a set value of a control quantity of the component; (see col 6, lines 14-17) determining the actual value of a controlled variable during operation of the technical plant; (see col 6, lines 15-17. Examiner notes the manipulated variable, MV, to be the actual value of a controlled variable during operation as claimed by applicant) changing the control ratio relative to a time response of the actual value until the actual value of the control variable remains within a tolerance band relative to the set value during operation of the technical plant; (see col 6, lines 39-45) and reducing the control ratio if the time response of the actual value has a dwell time during which the actual value has a value within the tolerance band that is smaller than a first defined time period during operation of the technical plant. (see col 6, lines 39-45)

The examiner further explains, in **Saito**, the “overshooting and damping ratio” has been defined, (Fig. 3A, 3B, 3C, 21A, 21B and 21C), as overshoot – damping control ratio as claimed, “control ratio”, by the applicants; the claimed limitation, “actual value within the tolerance band that is smaller than a first defined time period”, is the sharper slope of the actual responses versus time which, in control theory, can be defined as overshooting; reducing or increasing can be found in **Saito** (Fig. 10, 18A and 18B; Col. 8, lines 32 – 48 and Col. 11, line 65 – Col. 12, line 29) as a result of autotuning.

A further official notice, Seem et al. (U.S. Patent No. 5,506,768), has been cited by the examiner for teaching the tolerance band and the damping factor decided based on the slop of the signal which is well known in the art. [see Col. 4, line 64 – Col. 5, line 3; Col. 6, line 61 – Col. 7, line 4]

**Regarding Claim 12 (original claim 10), Saito discloses:**

The method in accordance with claim 11, wherein the integral-action time is determined from the system time constants. (see col 7, lines 34-44)

**Regarding Claim 13 (original claim 11), Saito discloses:**

The method in accordance with claim 11, wherein the integral-action time is determined from the sum of the system time constants of the component to be controlled. (see col 7, lines 34-44)

**Regarding Claim 14 (original claim 12), Saito discloses:**

The method in accordance with claim 11, wherein the control ratio is reduced if a first change rate of the actual value is greater than a second change rate of the set value. (see col 6, lines 39-45; see Fig. 18A and 18B, Col. 11, line 65 – Col. 12, line 9)

**Regarding Claim 15 (original claim 13), Saito discloses:**

The method in accordance with claim 11, wherein the control ratio is increased if the time response of the actual value has a rise time that includes the period from the start of a change of the set value until reaching an instantaneous value of the actual value within the tolerance band

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that is greater than a second defined time period. (see col 13, lines 62-67; further Fig. 18A and 18B, Col. 11, line 65 – Col. 12, line 9)

**Regarding Claim 16 (original claim 14), Saito discloses:**

A PI controller for controlling a component of a technical plant, comprising:

a logic element having a control ratio (see col 6, lines 34-37. Examiner notes that the damping ratio is the control ratio claimed by applicant and an integral-action time (see col 7, lines 6-7); a first controller input adapted to provide the controller can be supplied with a defined value for the integral-action time; (see col 7, lines 6-7) a second controller input adapted so the controller can be supplied with the control ratio; (see col 6, lines 34-37. Examiner notes that the damping ratio is the control ratio claimed by applicant) a third controller input adapted so the controller can be supplied with a set value of a control quantity of the component; (see col 6, lines 14-17) and an adaption device that constantly applies the actual value of a control variable during the operation of the technical plant so the adaption device and the control ratio can be constantly changed relative to the time response of the actual value until the actual value of the control variable remains within a tolerance band relative to the set value with the control ratio being reduced by the adaption unit if the time response of the actual value has a dwell time during which the actual value accepts a value within the tolerance band that is smaller than a first defined time period. (see col 6, lines 39-45. Examiner notes that control decider is the adaption device claimed by applicant)

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**Regarding Claim 17 (original claim 15), Saito discloses:**

The feedback controller in accordance with claim 16, wherein the integral-action time is determined from system time constants. (see col 7, lines 39-45)

**Regarding Claim 18 (original claim 16), Saito discloses:**

The feedback controller in accordance with claim 16, wherein the integral-action time is determined from the sum of the system time constants of the component to be controlled. (see col 7, lines 39-45)

**Regarding Claim 19 (original claim 17), Saito discloses:**

The feedback controller in accordance with claim 16, wherein the control ratio is reduced by the adaption unit if additionally a first change rate of the actual value is greater than a second change rate of the set value. (see col 6, lines 39-45)

**Regarding Claim 20 (original claim 18), Saito discloses:**

The feedback controller in accordance with claim 16, wherein the control ratio is increased by the adaption unit if the time response of the actual value has a rise time that includes the time period from the start of a change of the set value until achievement of an instantaneous value of the actual value within the tolerance band, that is greater than a second defined time period. (see col 13, lines 62-67)

**Response to Amendment**

**Claim Objections**

4. The examiner further indicates the numbering of the claims needs to be corrected to be 11 – 21 instead of 9 – 19.

**Claim Rejections - 35 USC § 102**

5. Regarding “beyond the tolerance band/within the tolerance band” which is disagreed with. There is no express definition which teaches how wide the tolerance band is. The examiner further explains, in **Saito**, the “overshooting and damping ratio” has been defined, (Fig. 3A, 3B, 3C, 21A, 21B and 21C), as overshoot – damping control ratio as claimed, “control ratio”, by the applicants; the claimed limitation, “actual value within the tolerance band that is smaller than a first defined time period”, is the sharper slop of the actual responses verses time which, in control theory, can be defined as overshooting; reducing or increasing can be found in **Saito** (Fig. 10, 18A and 18B; Col. 8, lines 32 – 48 and Col. 11, line 65 – Col. 12, line 29) as a result of autotuning.

6. Applicants’ arguments regarding “no teaching regarding change rates of the actual control value or the set value, only a fixed set value” which is disagreed with. See Fig. 18A and Fig. 18B, the values are changed.




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**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. via telephone number (571) 272-3682 or facsimile transmission (571) 273-3682 or email [sunray.chang@uspto.gov](mailto:sunray.chang@uspto.gov).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687.

The official facsimile transmission number for the organization where this application or proceeding is assigned is (571) 273-8300.



Anthony Knight  
Supervisory Primary Examiner  
Group Art Unit 2121  
Technology Center 2100  
U.S. Patent and Trademark Office

October 1, 2007